16-Port 10/100Mbps
Fast Ethernet Switch

User's Guide

Version 2.0
P/N: ATC020411SD16 Rev.A

This User's Guide contains important information regarding the installation of your switch. Please read it completely before beginning installation.

For future reference, record the serial number
of your network switch in the space below:

SERIAL number
The serial number is located on the bottom of the switch.

Amer.com

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FCC Class A Certification Statement

Model SD16 FCC Class A

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1)This device may not cause harmful interference, and (2)This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If the equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected to.
- Consult the dealer or an experienced radio/TV technician for help.

Shielded interface cables must be used in order to comply with emission limits. You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment. For more information please contact the Federal Communication Commission.

CE Mark Class A Statement In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

TABLE OF CONTENTS

ABOUT THIS GUIDE **1**

PURPOSE 1
TERMS/USAGE 1
OVERVIEW OF THIS USER'S GUIDE 1

INTRODUCTION **2**

FAST ETHERNET TECHNOLOGY 2
SWITCHING TECHNOLOGY 2
FEATURES 3

UNPACKING AND INSTALLATION **5**

UNPACKING 5
INSTALLATION 5

IDENTIFYING EXTERNAL COMPONENTS **6**

FRONT PANEL 6
REAR PANEL 7

TECHNICAL SPECIFICATIONS **8**

ABOUT THIS GUIDE

Congratulations on your purchase of the 16-port 10/100Mbps Fast Ethernet Switch.

This device integrates 100Mbps Fast Ethernet and 10Mbps Ethernet network capabilities in a hi ghly flexible package.

Purpose

This guide discusses how to install your 16-port 10/100Mbps Fast Ethernet Switch.

Terms/Usage

In this guide, the term "**Switch**" (first letter upper case) refers to your 16-port 10/100Mbps Fast Ethernet Switch, and "**switch**" (first letter lower case) refers to other Ethernet switches.

Overview of this User's Guide

Introduction. Describes the Switch and its features.

Unpacking and Installation. Helps you get started with the basic installation of the Switch.

Identifying External Components. Describes the front panel, rear panel and LED indicators of the Switch.

Technical Specifications. Lists the technical (general, physical and environmental, and performance) specifications of the Switch.

INTRODUCTION

This chapter describes the features of the Switch and some background information about Ether net/Fast Ethernet switching technology.

Fast Ethernet Technology

The growing importance of LANs and the increasing complexity of desktop computing applicati ons are fueling the need for high performance networks. A number of high-speed LAN technolo gies have been proposed to provide greater bandwidth and improve client/server response times. Among them, 100BASE-TX (Fast Ethernet) provides a non-disruptive, smooth evolution from t he current 10BASE-T technology. The non-disruptive and smooth evolution nature, and the do minating potential market base, virtually guarantee cost effective and high performance Fast Eth ernet solutions in the years to come.

100Mbps Fast Ethernet is a new standard specified by the IEEE 802.3 LAN committee. It is an extension of the 10Mbps Ethernet standard with the ability to transmit and receive data at 100M bps, while maintaining the CSMA/CD Ethernet protocol. Since the Switch is compatible with all 10Mbps Ethernet environments, it provides a straightforward upgrade and takes advantage of th e existing investment in hardware, software, and personnel training.

Switching Technology

Another approach to pushing beyond the limits of Ethernet technology is the development of swi tching technology. A switch bridges and transmits Ethernet packets at the MAC address level of the Ethernet protocol, among connected Ethernet or Fast Ethernet LAN segments.

Switching is a cost-effective way of increasing the total network capacity available to users on a local area network. A switch increases capacity and decreases network loading by dividing a loc al area network into different *segments*. Each *segment* has its own bandwidth and it does not co mpete with others for network transmission capacity.

A switch acts as a high-speed selective *bridge* between the individual segments. The switch for wards traffic from origin segment to destination segment, without interfering with any other seg ments. By doing this, the total network capacity is multiplied, while still maintaining the same n etwork cabling and adapter cards.

For Fast Ethernet networks, a switch is an effective way of eliminating problems of uplinking Fa st Ethernet hubs beyond the “two-repeater limit”. A switch can be used to split parts of the netw ork into different collision domains, making it possible to expand your Fast Ethernet network be yond the 205-meter network diameter limit. The switch supports both traditional 10Mbps Ethern et and 100Mbps Fast Ethernet, which is also ideal for bridging between the existing 10Mbps net works and the new 100Mbps networks.

LAN Switching technology is a marked improvement over the previous generation of network br idges, which were criticized by their higher latencies. *Routers* have also been used to segment lo cal area networks. But, the *router* is typically, expensive, difficult to setup, and maintenance inte nsive, which makes it relatively impractical for the network. Switch, on the other hand, is less ex pensive, easier to setup, and practically maintenance free, which make it an ideal solution to tod ay's local area network congestion problems.

Features

This high performance Switch was designed for a network environment where traffic and the nu mber of users increase continuously.

The Switch, with their small desktop size, was specifically design for small to middle workgroup s. It provides immediate access to a rapidly growing network through a wide range of user-reliab le functions.

The Switch is ideal for shared bandwidth 10Mbps or 100Mbps workgroups with multiple high-s peed servers. With the highest bandwidth at 200Mbps (100Mbps full-duplex mode), each port c an provide a workstation with a congestion-free data-pipe for simultaneous access to the server.

The Switch is expandable by cascading two or more switches together. As all ports support 200 Mbps, the Switch can be cascaded from any port and to any number of switches.

The Switch is a perfect choice for upgrading a 10Mbps network site to Fast Ethernet. Ethernet workgroups can connect to the Switch now, and change to Fast Ethernet adapters and hubs anyti me later without changing the Switch or reconfiguring the network.

The Switch combines dynamic memory allocation with store-and-forward switching to ensure th at the buffer is effectively allocated for each port. It also controls the data flow between transmit and receive nodes to guarantee against all possible packet loss.

This Switch is an unmanaged 10/100Mbps Fast Ethernet Switch that offers solutions to increase Ethernet workgroup bandwidth. Other key features are as follows:

- ✓ **16-port 10/100BASE Ethernet Switch with RJ-45 connectors**
- ✓ **Support Auto-negotiation for speed and duplex modes for each port**
- ✓ **Supports Auto-MDI/MDI-X for each port**
- ✓ **Wire speed reception and transmission**

- ✓ **Store-and-Forward switching method**
- ✓ **Integrated address Look-Up Engine, supports 8K absolute MAC addresses**
- ✓ **Supports 512Kbytes RAM for data buffering**
- ✓ **Front-panel diagnostic LEDs**
- ✓ **Broadcast storm protection**
- ✓ **IEEE 802.3x flow control for full-duplex**
- ✓ **Back pressure flow control for half-duplex**

UNPACKING AND INSTALLATION

This chapter provides unpacking and setup information for the Switch.

Unpacking

Open the shipping carton and carefully unpack its contents. The carton should contain the follo wing items:

- The 16-port 10/100Mbps Fast Ethernet Switch
- One external power adapter
- Four rubber feet to be used for shock cushioning
- This User's Guide

If any item is found missing or damaged, please contact your supplier for replacement.

Installation

The site where you install the Switch may greatly affect its performance. When installing, consid er the following pointers:

- Install the Switch in a fairly cool and dry place. See *Technical Specification* for the acceptable operating temperature and humidity ranges.
- Install the Switch in a site free from strong electromagnetic source, vibration, dust, and direct sunlight.
- Leave at least 10cm of space at the left and right hand side of the Switch for ventilation.
- Visually inspect the DC power jack and make sure that it is fully secured to the power adapter.

This section identifies all the major external components of the switch. Both the front and rear p anel is shown, followed by a description of each panel's feature.

Front Panel

The figure below shows the front panels of the switch.

16-port 10/100Mbps Fast Ethernet Switch

LED Indicator Panel

- **Power (PWR)**

This indicator lights green when the switch is receiving power, otherwise, it is off.

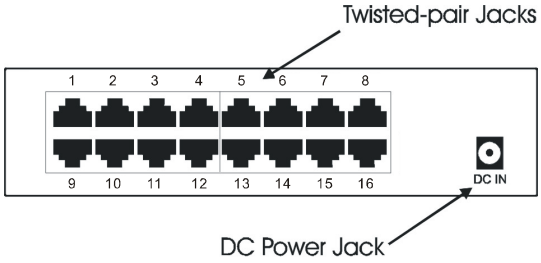
- **Link / Activity (green)**

This indicator lights green when the port is connected to a Fast Ethernet or Ethernet station. The indicator blinks green when transmitting or receiving data.

- **100Mbps (green)**

This LED indicator lights green when the port is connected to a 100Mbps Fast Ethernet station. Otherwise, the LED is off when the port is connected to a 10Mbps Ethernet station.

Rear Panel



Twisted-Pair Ports

All ports support the automatic MDI/MDIX crossover detection function which gives true ‘plug and play’ capability without the need of confusing crossover cables or crossover ports.

With the Auto-MDI function, you simply plug-in the network cable to the switch directly withou t care if the end node is a NIC (Network Interface Card) adapter, or switches and hubs.

DC Power Jack:

Power is supplied through an external AC power adapter. Check the technical specification sect ion for information about the AC power input voltage.

Note: The unit will power on immediately by plugging its power adapter into a power outlet.

TECHNICAL SPECIFICATIONS

General	
Standards	IEEE 802.3 10Base-T Ethernet IEEE 802.3u 100 Base-TX Fast Ethernet IEEE 802.3x flow control
Protocol	CSMA/CD
Data Transfer Rate	Ethernet: 10Mbps (half duplex), 20Mbps (full duplex) Fast Ethernet: 100Mbps (half duplex), 200Mbps (full duplex)
Topology	Star
Network Cables	10BASET: 2-pair UTP Cat. 3,4,5; EIA/TIA-568 100-ohm STP 100BASE-TX: 2-pair UTP Cat. 5; EIA/TIA-568 100-ohm STP
Number of Ports	16 x 10/100Mbps auto-MDI/MDI-X port
Physical and Environmental	
DC inputs	7.5V 1A
Power Consumption	6 watts. (Max.)
Temperature	Operating: 0° ~ 40° C, Storage: -10° ~ 70° C
Humidity	Operating: 10% ~ 90%, Storage: 5% ~ 90%
Dimensions	184 x 124 x 44 mm (W x H x D)
EMI:	FCC Class A, CE Mark Class A, VCCI Class A
Performance	
Transmits Method:	Store-and-forward
RAM Buffer:	512KBytes per device
Filtering Address Table:	8 K entries per device
Packet Filtering/Forwarding Rate:	10Mbps Ethernet: 14,880/pps 100Mbps Fast Ethernet: 148,800/pps
MAC Address Learning:	Automatic update

Amer.com Warranty Policy

Limited Lifetime Warranty

In the event of a defect in quality or workmanship, Amer.com will repair or replace any hardware product sold by Amer.com with new or reconditioned parts free of charge in North America for a limited lifetime period unless otherwise specified on the sales invoice from the date of original purchase. All removed parts become the property of Amer.com. All replaced parts assume the original warranty.

This warranty is extended only to the original purchaser. Proof of purchase will be required before warranty service is provided.

This warranty covers only failures due to defects in quality or workmanship that occur during normal use. It does not cover damage that occurs in shipment, electrical storms, floods, dropped or other acts of nature.

This warranty also does not cover any failure that results from accident, misuse, abuse, neglect, mishandling, misapplication, alteration, faulty installation, modification, computer virus, improperly installed or faulty software, or service by anyone other than an Amer.com Service Technician. If there is evidence that the failure was due to user negligence, Amer.com has the right to void this warranty and or charge normal service rates for the subject repair.

The limited warranty covers a one (1) year period from date of purchase on Power Supplies, AC Adapters & Fans, after the 1 year a cost for replacement is applied to all products requiring such parts.

Amer.com is not responsible for any type of data loss on hard drive or other storage devices.

Warranty Service can be obtained during the warranty period by shipping, freight prepaid, or delivering the product to Amer.com in either the original package or a similar package providing an equal degree of protection. Amer.com will perform the required service and return the unit to the user (freight prepaid), if applicable, via the same mode (i.e. ground, air, etc.)

Limits and Expectations

There are no express warranties except as listed above.

Network products by Amer.com shall not be liable for incidental or consequential damages resulting from the use of this product. Any future upgrades, including (but not limited to) hardware and software are not covered by this limited warranty. If a hardware problem with this product develops during the warranty period, you may contact the Amer.com Service Center at:

Telephone (727) 549-0772

Facsimile (727) 549-0992

Service Center

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